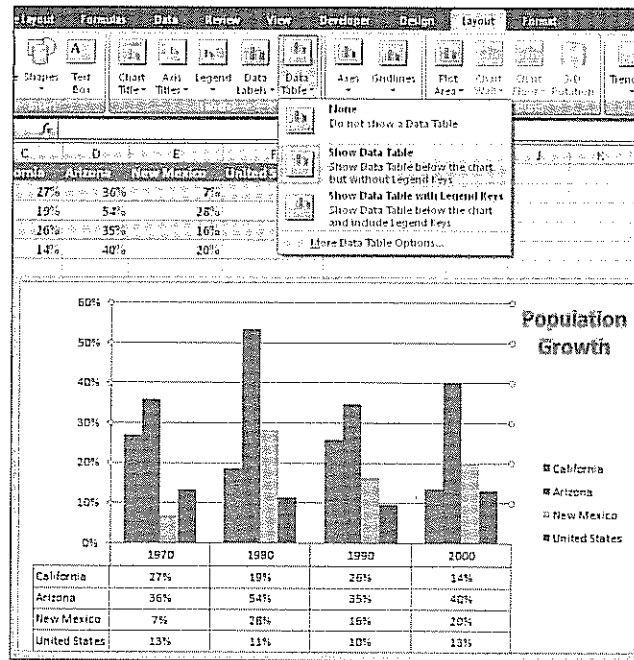


**Figure 22.29**  
Data tables give your audience both views of the data—the visual display as well as the underlying numbers.



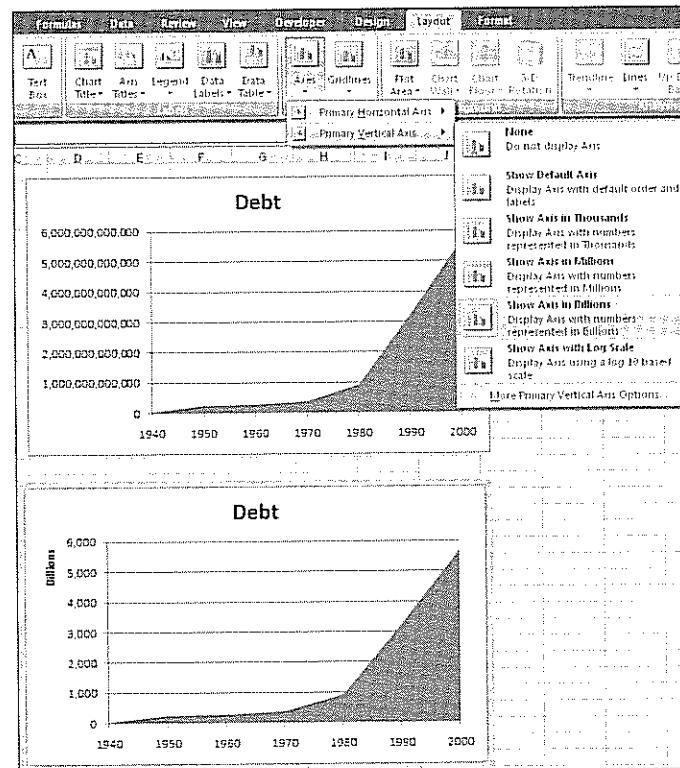
## CUSTOMIZING AXES

Excel automatically chooses a scale for the horizontal and vertical axis. There are many situations where the default axes settings are not ideal. The defaults will lead to charts that are hard to interpret. Use the ideas in this section to customize the axes on your chart and to bring out your intended message.

### DISPLAYING VERTICAL AXIS IN THOUSANDS, AND SO ON

The numbers along your vertical axis will inherit the numeric formatting of the source data. Although Excel tipsters love the arcane formatting codes that allow you to display numbers in thousands or millions, Microsoft has simplified the task considerably in Excel 2007. Choose Chart Tools Layout, Axes, Primary Vertical Axes, Show Axis in Thousands to reduce the number of zeroes occupying space along the left side of your chart. In Figure 22.30, the bottom chart has numbers displayed in billions.

**Figure 22.30**  
Use the Axes options  
to eliminate 000s from  
the axes labels.



### USING A TIME SERIES ALONG A HORIZONTAL AXIS

A quick glance at the top chart in Figure 22.31 might lead you to believe that population growth is slowing. However, if you notice the labels along the horizontal axis, you will see that there is not an equal amount of years between each data point.

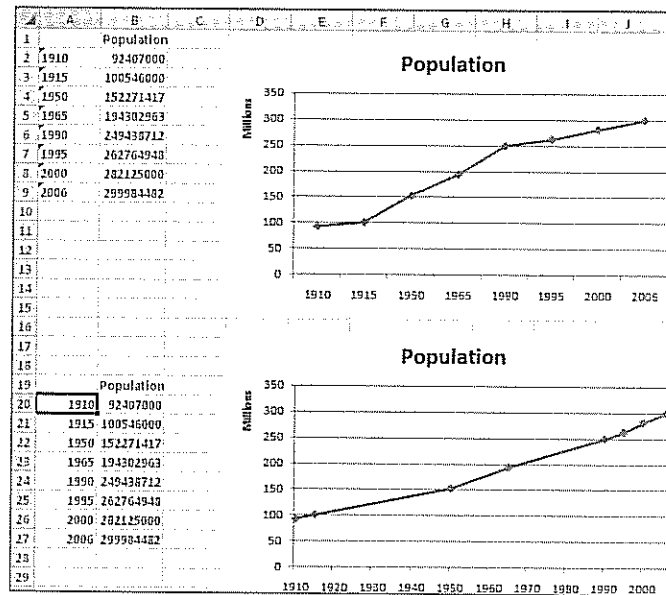
In a case where one axis represents a timescale, you should make sure that your underlying data contains numbers that are formatted as dates. The DATE functions in A20:A27 convert the text years to real Excel dates. The bottom chart automatically converts the horizontal axis to a timescale, providing a more realistic view of the data.

#### NOTE

If your source data contains dates and you want to force the axis to be a text-based axis, you can control this by selecting Chart Tools Layout, Axes, Primary Horizontal Axis, More Primary Horizontal Axis Option, Axis Options, Axis Type: Text Axis.

**Figure 22.31**

Text years in the top chart cause Excel to plot each data point at an equal distance. The timescale in the bottom chart presents a more accurate view of the data.



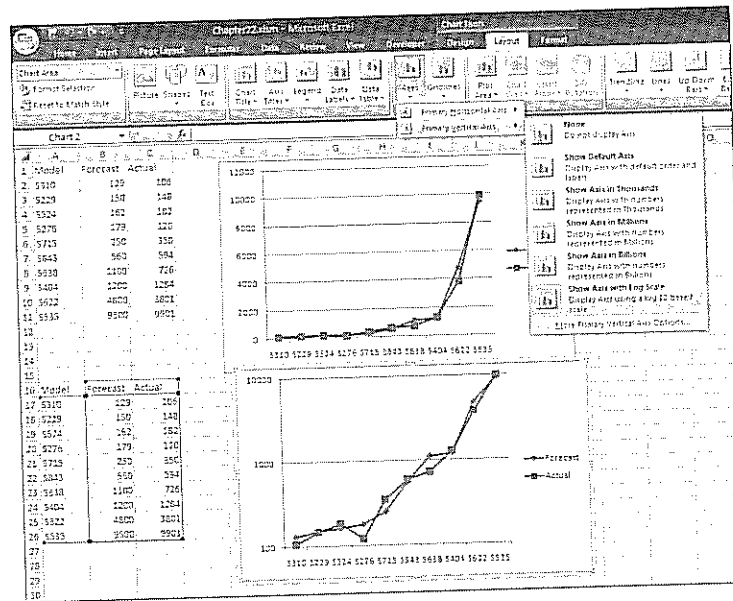
### SHOWING NUMBERS OF DIFFERENT SCALE USING A LOGARITHMIC AXIS

If a single data series has numbers of different orders of magnitude, it is difficult to interpret the numbers on the chart. In the top chart in Figure 22.32, most models are in the 100–500 quantity range. A few best-selling models in the 9,000 range force the axis to scale up to be large enough to include points in the 10,000 range. This makes it impossible to distinguish any detail of the lower-selling models.

In the bottom chart in Figure 22.32, the Show Axis with Log Scale option has been chosen. In a logarithmic scale, the distance from 10 to 100 on the vertical axis is the same as the distance from 1,000 to 10,000. This scaling effect allows you to make out the detail for both the smaller data points.

To access this setting, choose Chart Tools Layout, Axes, Primary Vertical Axis, Show Axis with Log Scale.

**Figure 22.32**  
A logarithmic scale on the axis in the bottom chart allows the details of the smaller data points to be read.



## PLOTTING ONE SERIES ON A SECONDARY AXIS

You may often have data series that contain numbers of a different scale. For example, you might want to show both revenues and gross profit percentage by month on the same chart.

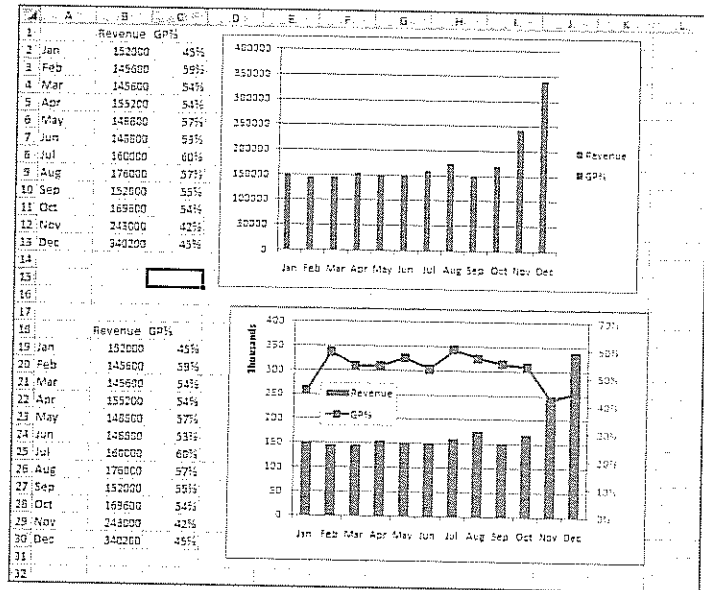
If you attempt to plot both series on the same chart, the numbers for the gross profit percentage are too small to show up on the chart, as shown in the top chart in Figure 22.33.

To create the bottom chart in the figure, follow these steps:

1. Create your chart as a Clustered Column chart.
2. On the Chart Tools Layout ribbon, use the drop-down list in the Current Selection drop-down list to select the smaller series. In this case, you would select Series GP%.
3. Click the Format Selection button. In the Series Options category of the Format Data Series dialog box, choose Plot Series on Secondary Axis. Click Close to close the Format Data Series dialog box.
4. While the second series is still selected, go back to the Chart Tools Design ribbon and choose Change Chart Type. Choose Line with Markers.
5. In the current chart, the columns are blue and the line is red. You might want to change the color of the numbers on the secondary axis to be red to match the color of the line. Click any of the numbers on the right side of the chart to select the secondary axis. Use the Font Color drop-down list on the Home ribbon tab to change the color of the numbers to red.

6. In a similar fashion, change the color of the primary vertical axis to blue. You can also use Chart Tools Layout, Axes, Primary Vertical Axis, Show Axis in Thousands to scale the axis. Format the legend to have a solid white fill and a border. Drag the border of the legend to overlay the chart. Resize the plot area to fill the space formerly occupied by the legend.

**Figure 22.33**  
Plotting the percentages on a secondary y-axis allows them to be seen in the lower chart.



### NOT STARTING THE AXIS AT ZERO

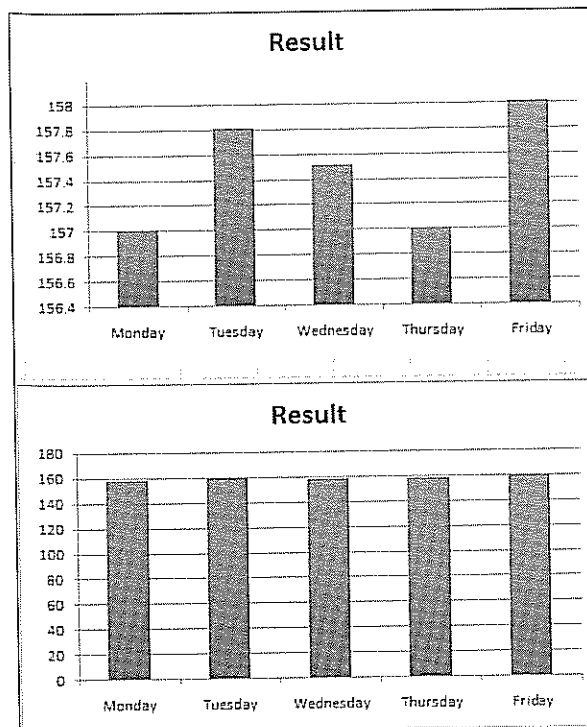
To make a chart easier to read, you might also want to adjust the scale on the vertical axis. In Excel 2007, the values automatically scale to include numbers slightly below and above the values in your data series.

This is usually a good change. In Figure 22.34, the default decision to scale the vertical axis from 156.4 to 158 allows you to make out the variability from day to day. Had Excel scaled the axis from 0 to 180, every bar would look identical.

You can still control the minimum and maximum values along the axis if necessary:

1. Right-click the value axis and select Format Axis.
2. In the Axis Options category or the Format Axis dialog, change the Minimum or Maximum setting from Auto to Fixed. Enter a new number in the text box as shown in Figure 22.35.
3. Click Close to apply the changes to your chart.

**Figure 22.34**  
Choosing an appropriate scale range allows you to notice variability in the top chart that would not be noticeable in the bottom chart.



**Figure 22.35**  
You can override the scale range for a chart.

**Format Axis**

**Axis Options**

Minimum: ☐ Auto ☒ Fixed 0.0

Maximum: ☒ Auto ☐ Fixed 120.0

Major unit: ☒ Auto ☐ Fixed 0.0

Minor unit: ☒ Auto ☐ Fixed 4.0

☒ Values in reverse order

☐ Logarithmic scale Base: 10

Display units: None

☐ Show display units label on chart

Major tick mark type: Outside

Minor tick mark type: None

Axis labels: Next to Axis

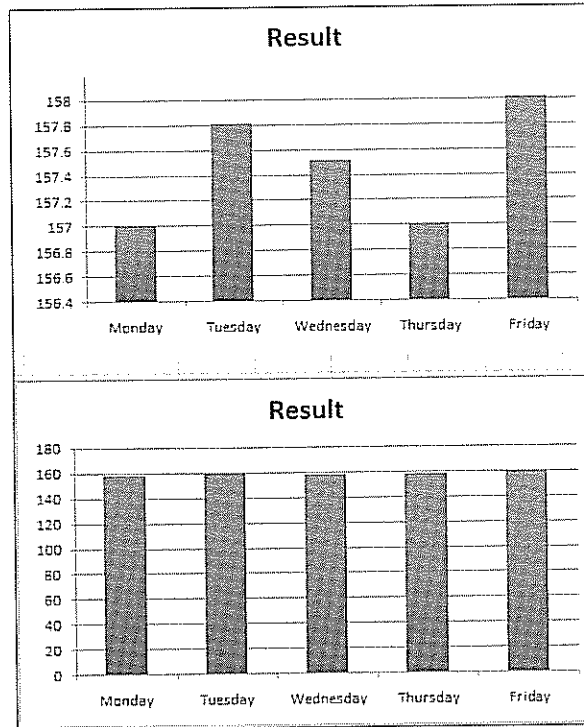
Horizontal axis crosses: ☒ Automatic

☐ Axis value: 0.0

☐ Maximum axis value

Close

**Figure 22.34**  
Choosing an appropriate scale range allows you to notice variability in the top chart that would not be noticeable in the bottom chart.



**Figure 22.35**  
You can override the scale range for a chart.

